



International Association of Geodesy

Newsletter

March 2012

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The *IAG Newsletter* is under the editorial responsibility of the *Communication and Outreach Branch* (COB) of the IAG.

It is an open forum and contributors are welcome to send material (preferably in electronic form) to the IAG COB (newsletter@iag-aig.org). These contributions should complement information sent by IAG officials or by IAG symposia organizers (reports and announcements). The *IAG Newsletter* is published monthly. It is available in different formats from the IAG new internet site: <http://www.iag-aig.org>

Each *IAG Newsletter* includes several of the following topics:

- I. news from the Bureau Members
- II. general information
- III. reports of IAG symposia
- IV. reports by commissions, special commissions or study groups
- V. symposia announcements
- VI. book reviews
- VII. fast bibliography

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General Announcements

150 Years International Association of Geodesy

The International Association of Geodesy (IAG) is celebrating its 150th anniversary in 2012. At the invitation of the Prussian General Johann Jacob Baeyer (1794-1885), representatives of the states of Prussia, Austria and Saxony met from 24th to 26th April 1862 in Berlin to discuss Baeyer's "Proposal for a Central European Arc Measurement" ("Entwurf zu einer mitteleuropäischen Gradmessung"), which he had sent out in 1861 to all Central European states. By the end of 1862, 16 states had already agreed to participate in the project: Austria, Belgium, Denmark, France, seven German states (Baden, Bavaria, Hannover, Mecklenburg, Prussia, Saxony, Saxe-Gotha), Italy, The Netherlands, Poland, Sweden and Norway (in personal union), and Switzerland. This was a great success and the start of an organised international collaboration in geodesy. The IAG counts this international scientific (governmental) initiative, and the organisation it spawned, as its origin.

The idea for the project had been submitted by Baeyer to the Prussian Ministry of War in his document "On the size and figure of the Earth: a memorandum on the establishment of a Central European arc measurement, along with a sketch map" ("Über die Größe und Figur der Erde: eine Denkschrift zur Begründung einer Mitteleuropäischen Gradmessung nebst einer Übersichtskarte"). The aim was to connect the numerous Central European astronomical observatories by the existing or to be planned triangulation networks, in order to determine the regional and local anomalies of the curvature of the figure of the Earth (i.e. the deflections of the vertical and thus the relative structure of the geoid). This was the basis for all precise point positioning in science and practice, and the beginning of interpreting these anomalies with respect to the structure and composition of the outer layer of the Earth, which was explicitly mentioned by Baeyer as a scientific challenge.



J. J. Baeyer memorial in Berlin Müggelheim and the first page of the Minutes of the Meeting in 1862

Protokoll der am 24., 25. und 26. April 1862 in Berlin abgehaltenen vorläufigen Berathungen über das Projekt einer Mitteleuropäischen Gradmessung.*)

An den genannten Tagen versammelten sich die unterzeichneten Kommissarien bei dem General-Lieutenant z. D. *Baeyer*, um sich vorläufig über die Einleitung der Arbeiten an der Mitteleuropäischen Gradmessung im Bereich von Oesterreich, Preussen und Sachsen zu besprechen, und namentlich um eine Verbindung der Triangulationen für die Zwecke der Gradmessung zu vereinbaren.

Man einigte sich unter Vorbehalt der Genehmigung der betreffenden hohen Regierungen über folgende Punkte:

1. Bis zu welcher Fehlergrenze dürfen die älteren Triangulationen benutzt werden.

Von den Herren Astronomen wurde der durchschnittliche Fehler einer Polhöhenbestimmung auf $\frac{1}{2}$ Sekunde geschätzt. Eine Sekunde im Meridianbogen zählt etwa 16 Toisen, $\frac{1}{2}$ Sekunde in runder Summe 5 Toisen. Nimmt man an, dass astronomische Bestimmungen in Entfernungen von 100,000 Toisen vorhanden sind, oder ausgeführt werden, so würde der Fehler der astronomischen Bestimmungen auf 100,000 Toisen 5, also $\frac{1}{20,000}$ der Länge, betragen.

Da die neuen Triangulationen mit viel kleineren Fehlern behaftet sind; auf der anderen Seite aber die Unmöglichkeit vorliegt, alle älteren zu erneuern, so kam man überein, die oben für die astronomischen Bestimmungen gefundene Fehlerhaftigkeit d. h. $\frac{1}{20,000}$ der Länge als die Grenze anzusehen, bis zu welcher ältere Triangulationen benutzt werden können.

Dreiecksketten genügen, in denen die Fehler in der Summe der drei Winkel der Dreiecke drei Sekunden nicht, oder doch nur in Ausnahme-Fällen übersteigen.

* Unveränderter Abdruck des ursprünglich lithographirten Protokolls.

In October 1864, the first "General Conference of the Representatives to the Central European Arc Measurement" took place in Berlin. The organisational structure (Permanent Commission, Central Bureau, and triennial General Conferences) was agreed to and a research programme was set up. The IAG considers this conference as its first General Assembly. J. J. Baeyer was appointed Director of the Central Bureau and P. A. Hansen appointed President of the Permanent Commission. The project extended rapidly to other European states, and consequently the name of the organisation was changed in 1867 to "Europäische Gradmessung", and in 1886 to "Internationale Erdmessung" (in French: "Association Internationale de Géodésie", in English: "International Geodetic Association") with additional member states Argentina, Chile, Japan, Mexico, and USA.

Baeyer died in 1885, and under his successor, Friedrich Robert Helmert, the Central Bureau moved from Berlin to Potsdam, together with the Geodetic Institute, which is the predecessor of today's GeoForschungsZentrum (GFZ) Potsdam.

To pay tribute to its origins, IAG will hold its regular quadrennial Scientific Assembly as the official anniversary celebration in September 2013, between the dates of the foundation and first General Conference of the Mitteleuropäische Gradmessung, in Potsdam and Berlin.

References:

- Adam, J.: Update of the History of the International Association of Geodesy. *J. Geodesy* (82) 662-674, 2008.
- Angus-Leppan, P.-V.: A note on the history of the International Association of Geodesy. *Bull. Geod.* (58) 224-229, 1984.
- Beutler, G., H. Drewes, A. Verdun: The new structure of the International Association of Geodesy (IAG) viewed from the perspective of history. *J. Geodesy* (77) 566-575, 2004.
- Helmert, F.R.: Die Internationale Erdmessung in den ersten fünfzig Jahren ihres Bestehens. *Internationale Monatsschrift für Wissenschaft, Kunst und Technik* (7) 398-424, 1913.
- Levallois, J.J.: The history of the International Association of Geodesy. *Bull. Geod.* (54) 249-313, 1980.
- Louis, M.: History of the International Association of Geodesy. *Bull. Geod.* (66) 79-81, 1992.
- Tardi, P.: Hundert Jahre Internationale Erdmessung. *Z. f. Vermessungswesen* (88) 2-10, 1963
- Torge, W.: The International Association of Geodesy (IAG) - More than 130 years of international cooperation. *J. Geodesy* (70) 840-845, 1996.
- Torge, W.: The International Association of Geodesy 1862 to 1922: from a regional project to an international organization. *J. Geodesy* (78) 558-568, 2005.
- Whitten, Ch.: History of the International Association of Geodesy. *Bull. Geod.* (62) 197-206, 1988.

HERMANN DREWES
Secretary General of IAG

Invitation for proposals for changes to the IAG Statutes and Bylaws

Article 16 of IAG's Statutes specifies that the Association shall review its Statutes and Bylaws to ensure an up-to-date structure of its scientific organization every eight years. The last time such a review was initiated was about eight years ago under the presidency of Gerard Beutler. It is now therefore time that we again take a fresh look at our Statutes and Bylaws. To achieve this goal, a Review Committee (traditionally called the Cassinis Committee) was appointed in the fall of 2011 by the IAG Executive. The committee is chaired by Michael Sideris and includes as members Harald Schuh, Ruth Neilan and Yoichi Fukuda. A proposal with all suggested revisions will be made by the Cassinis Committee for consideration by the IAG Executive and possibly the Council at the 2013 Scientific Assembly. In this way, we are hoping to get the Council's reaction and input to the proposed changes before these are finalized and approved at the next IUGG General Assembly in 2015.

With this announcement, the Cassinis Committee is inviting proposals for changes of any article of the Statutes and Bylaws. Proposals can be submitted through the IAG website Forum (www.iag-aig.org/proposals). The actual Statutes and By-laws can be found on the IAG website. All proposals submitted **between March 1, 2012 and February 1, 2013** will be considered by the Cassinis Committee.

We are very much looking forward to receiving your contributions.

MICHAEL SIDERIS, HARALD SCHUH, RUTH NEILAN, YOICHI FUKUDA

Meeting Announcements

Meetings Calendar

IERS GGFC Workshop

April 20, 2012, Courtyard Vienna Messe, Vienna, Austria

IERS Global Geophysical Fluids Center (GGFC) Workshop
URL: <http://geophy.uni.lu/>

European Geosciences Union General Assembly 2012

April 22-27, 2012, Vienna, Austria
URL: <http://meetings.copernicus.org/egu2012/>

10th International Conference on Southern Hemisphere Meteorology and Oceanography

April 23-27, 2012, Noumea, New-Caledonia
URL: <http://www.colloque.ird.fr/icshmo-2012>

FIG Working Week 2012

May 6-10, 2012, Rome, Italy
Knowing to manage the territory, protect the environment, evaluate the cultural heritage.
URL: <http://www.fig.net/fig2012/>

United Nations/Latvia Workshop on the Applications of Global Navigation Satellite Systems

May 14-18, 2012, Riga, Latvia
URL: <http://www.unoosa.org/oosa/en/SAP/gnss/index.html>

6th GNSS Vulnerabilities and Solutions Conference

May 21-24, 2012, Baška, Krk Island, Croatia
URL: <http://www.rin.org.uk/events.aspx?ID=51&SectionID=23&ItemID=1656>

Canadian Geophysical Union National Conference

June 5-8, 2012, Banff, Canada
URL: <http://www.elements2012.ca/>

IUGG Conference on Mathematical Geophysics

June 18-22, 2012, Edinburgh, Scotland
URL: <http://www.cmgedinburgh2012.org.uk/>

SGEM 2012

June 17-23, 2012, Albena Summer Resort, Bulgaria
URL: <http://www.sgem.org/>

4th International Conference on Cartography and GIS

June 18-22, 2012, Albena Summer Resort, Bulgaria
URL: <http://www.cartography-gis.com/4thConference/Index.html>

7th Portuguese-Spanish Assembly of Geodesy and Geophysics

June 25-29, 2012, San Sebastian, Spain
URL: www.7ahpgg.com

2nd IAHR Europe Congress

June 27-29, 2012, Munich, Germany
URL: <http://www.iahr2012.tum.de/>

XXXII SCAR Open Science Conference

July 13-25, 2012, Portland, Oregon, USA
URL: <http://scar2012.geol.pdx.edu/>

2012 IGS Workshop

July 23-27, 2012, Olsztyn, Poland
URL: http://www.uwm.edu.pl/kaig/igs_workshop_2012/

39th COSPAR Scientific Assembly

July 14-22, 2012, Mysore, India

URL: <http://www.cospar-assembly.org/>

IGS Analysis Center Workshop 2012

July 23-27, 2012, Olsztyn, Poland

URL: <http://igscb.jpl.nasa.gov/pipermail/igsmail/2011/006436.html>

AOGS-AGU (WPGM) Joint Assembly

August 13-17, 2012, Singapore, Singapore

URL: <http://www.asiaoceania.org/aogs2012/>

International Symposium on Space Geodesy and Earth System (SGES2012)

August 19-20, 2012, Shanghai, China

URL: <http://www.shao.ac.cn/meetings>

ESC 2012

August 19-24, 2012, Moscow, Russia

European Seismological Commission 33rd General Assembly

URL: www.esc2012-moscow.org

International Astronomical Union General Assembly

August 20-31, 2012, Beijing, China

URL: <http://www.astronomy2012.org/>

International Summer School on Space Geodesy and Earth System

August 21-25, 2012, Shanghai, China

URL: <http://www.shao.ac.cn/schools>

IAU Joint Discussion (JD7): Space-time reference systems for future research

August 27-29, 2012, Beijing, China

URL: http://www.iau.org/science/meetings/future/joint_discussions/1058/

Scientific Colloquium of the Leibniz Society

September 14, 2012, Berlin, Germany

Leibniz Society of Sciences at Berlin (www.leibniz-sozietat.de) organizes a Scientific Colloquium on the topics of scientific geodesy and history of geodesy. Contact person: Heinz Kautzleben (kautzleben@t-online.de)

GRACE Science Team Meeting 2012

September 17-20, 2012, Potsdam, Germany

URL: <http://www.gfz-potsdam.de>

17th International Symposium on Earth Tides and Earth Rotation ETS 2012

September 24-28, 2012, Cairo, Egypt

URL: <http://www.ets2012.com/>

20 Years of Progress in Radar Altimetry

September 24-29, 2012, Venice, Italy

URL: <http://www.altimetry2012.org/>

IDS Workshop

September 25-26, 2012, Venice, Italy

URL: <http://ids-doris.org/report/meeting-presentations/ids-workshop-2012.html>

European VLBI Network (EVN) Symposium

October 9-12, 2012, Bordeaux, France

URL: <http://iag.dgfi.badw.de/index.php?id=291>

International Symposium on Gravity, Geoid and Height Systems GGHS 2012

October 9-12, 2012, Venice, Italy

URL: <http://www.gravityfield.org/>

25th CODATA General Assembly

October 26-27, 2012, Beijing, China

URL: <http://www.codata.org>

Pan Ocean Remote Sensing Conference (PORSEC-2012)

November 5-9, 2012, Kochi, Kerala, India

URL: <http://www.porsec2012.incois.gov.in/>

AGU 2012 Fall Meeting

December 6-10, 2012, San Francisco, USA

URL: <http://www.agu.org/meetings/>

European Geosciences Union General Assembly 2013

April 7-12, 2013, Vienna, Austria

URL: <http://www.egu.eu/meetings/meeting-overview.html>

Joint IAMAS-IACS Assembly

July 8-12, 2013, Davos, Switzerland

Davos Atmosphere and Cryosphere Assembly 2013, Ice & Air – Process Interactions

URL: www.daca-13.org

Joint IAHS-IAPSO-IASPEI Scientific Assembly

July 22-26, 2013, Gothenburg, Sweden

URL: <http://www.iaspei.org/meetings/forthcoming.html#iaspei2013>

26th International Cartographic Conference

August 25-30, 2013, Dresden, Germany

URL: <http://www.icc2013.org/>

12th IAGA Scientific Assembly

August 26-31, 2013, Mérida, Mexico

URL: www.iaga2013.org.mx

IAG Scientific Assembly

September 1-16, 2013, Potsdam, Germany

URL: <http://iag.dgfi.badw.de/index.php?id=291>

AGU 2013 Fall Meeting

December 9-13, 2013, San Francisco, USA

URL: <http://www.agu.org/cgi-bin/gycal?details=1&file=2013120900320182043&li>

Reports

NAG 2011 General Assembly/Conference 14-16 September 2011, Enugu, Nigeria

The Nigeria Association of Geodesy (NAG) held a National Conference/General Assembly at the Moot Court of the Law Faculty of the University of Nigeria, Enugu campus from 14th – 16th September, 2011 with the theme: *National Challenges in the 21st Century and Geodetic Solutions*. The subthemes were

- i. Geo-hazard threats and Geodynamics
- ii. Geodesy and Advances in Nigeria Space Research & Development Programme
- iii. Geodesy in Nigerian Coastal and Marine Environmental
- iv. Geodetic Data in Economic and Environmental Management
- v. Geodesy and National Security

Two Association Lectures (by Prof FA Fajemirokun and Prof DMJ Fubara) and more than 20 technical papers on the theme and sub-themes were presented. The Conference highlighted modern geodetic activities and took the audience to the frontiers of current researches in Geodesy. Also, how recent developments in geodetic techniques are solving societal problems, thereby positioning geodesy at the centre of human activities, were discussed. Seventy two (72) persons drawn from various institutions/establishments registered as participants.

NAG is an association that is aimed at providing a nonpartisan and non-profit making, national forum for all in Nigeria concerned with the effective application of geodesy and related sciences to scholarship and human progress and development. NAG is affiliated and maintains close collaboration with the International Association of Geodesy (IAG) and its various arms and affiliates. NAG is also one of the components of the Nigerian Union of Planetary and Radios Sciences (NUPRS) which is affiliated to the International Union of Geodesy and Geophysics (IUGG). For more information on NAG contact Prof. Francis I. Okeke (francis.okeke@unn.edu.ng).

Please find below the **Communiqué of the Conference**:

PREAMBLE

The 2011 General Assembly/ Conference of the Nigeria Association of Geodesy (NAG) was held in University of Nigeria, Enugu Campus (UNEC) Enugu, from Wednesday 14th to Friday 16th September 2011 with the theme: **National Challenges in the 21st Century and Geodetic Solutions**.

The Conference was declared open by the Vice-Chancellor, University of Nigeria, ably represented by Prof. G. O. S. Amadi. Professors F.A. Fajemirokun and D. M. J. Fubara delivered Association lectures on: The future of Geodesy in Nigeria: Issues of Capacity Building; and Space Geodesy in Coastal and Marine Environment respectively.

The Technical Sessions dwelt extensively on the following sub-themes:

- i. Geodesy, Geo-Hazard Threats and Security Issues in Nigeria
- ii. Advances in Geodetic Infrastructure Development in Nigeria;
- iii. Geodesy in Economic, Coastal and Environmental Management in Nigeria;

After due deliberations, the Conference arrived at the following resolutions and recommendations.

RESOLUTIONS AND RECOMMENDATIONS

1. Overview of Geodesy in Nigeria

The Conference examined the development and challenges of geodesy in Nigeria from the inception and recommends that Geodesists should go back to drawing board, define priorities and draw up programmes of actions at finding solution to the geodetic challenges.

2. Geo-hazard Threats and Security Issues

(a) Geo-hazard:

The Conference expressed satisfaction with the application of Geodetic Solutions to solving geo-hazard problems in Nigeria and recommends the comprehensive use of geodetic techniques in monitoring flood disasters and large structures (high-rise buildings, bridges, dams, oil rigs, oil tanks, etc) in Nigeria.

(b) Security Issues:

The Conference appreciates the efforts made by governments in boundary demarcations in Nigeria and therefore recommends that all states and national boundaries should properly and physically demarcated and monitored to avoid boundary skirmishes and enhance peace and development in Nigeria.

3. Geodetic Infrastructure Development

(a) Space Geodesy:

The Conference appreciates the provision of the Global Navigation Satellite System (GNSS) Continuously Operating Reference System (CORS) in Nigeria by the Federal Government and therefore recommends that more of the infrastructure be deployed to cover the length and breadth of Nigeria; and to invest more on collaborative research on the use of the infrastructure for Land Reform and Space Research and Development in Nigeria.

(b) Physical Geodesy:

The Conference regretted the paucity of gravity data in Nigeria for Research and Development, which has hampered determination of accurate height data for geophysical and oil/mineral exploration. The Conference therefore recommends that gravity observations already done in Nigeria should be made available to Geodesists for relevant Research and Development.

4. Economic, Coastal and Environmental Management

The Conference expressed concern on the danger posed by sea level rise around the coastal regions of Nigeria and recommends that the Governments should provide Tides Gauges and other Facilities to Monitor and manage the phenomenon.

5. Capacity Building

- i. The conference expressed the need for capacity building in all aspect of Geodesy and therefore recommends close collaboration between NAG, NIS, SURCON, OSGOF and NASRDA to tap from the expertise of Nigerian Geodesists.
- ii. The conference observed lack of interest in Geodesy and consequently recommends that NAG should take necessary steps to create the awareness and liaise with necessary institutions to reverse this trend;
- iii. In order to tackle what seems to be lack of interest in the area of Geodesy and Geodynamics, institutions have been challenged proactive and encourage the study of Physics and Mathematics which are the fundamental subjects.

6. The Way Forward

The Conference observed the following as the way forward in the Institutional, corporate and individual capacity development and utilization of Geodesy in Nigeria.

- a. The NAG viewed with concern the plan to jettison Nigeria Geodetic Datum in preference for the Global WGS-84 Geocentric Datum for mapping operations and therefore recommends the need to study the implications of such a decision by High Powered Study Group and take a final position.
- b. Making Centre for Geodesy and Geodynamics (CGG) in Toro a Centre of Excellence;
- c. Resolving all issues relating to Geodetic Control Network (Horizontal, Vertical and Datum Definition);
- d. Government Agencies and other Stakeholders in Geodesy should show more interest in Geodesy by formally challenging Geodesists with National problems and sit in to listen and exchange ideas at Geodetic Conferences.

Appreciation

Finally, we express our appreciation to the Local Organizing Committee (LOC), the sponsors, the Management of Moot Court Hall and the Vice Chancellor University of Nigeria, and the Chairman, NIS (Nigerian Institution of Surveyors) Enugu State. Special thanks to all delegates and participants for their support and maximum cooperation throughout the Conference.

MEMBERS OF COMMUNIQUE DRAFTING COMMITTEE:

- Dr. L. M. Ojigi, Chairman
- Dr. V. N. Uzodinma, Member
- Dr. J. D. Dodo, Member

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